

AMENDMENTS TO THE CLAIMS

1. (currently amended) an orthogonal frequency division multiplexing transmitter in an OFDM communication device, comprising:

a time multiplexor;

a synchronization signal generator operatively connected to the time multiplexor; and

a data supplier operatively connected to the time multiplexor, for synchronizing a transmitter and a receiver with a synchronization preamble, wherein a zero amplitude reduced preamble signal, which is obtained by passing a specified synchronization preamble through an ideal low-pass filter in the synchronization signal generator to reduce a signal component to near zero amplitude within a time domain, is time-multiplexed in the time multiplexor with transmit data received from the data supplier to generate an OFDM transmit signal.

2. (currently amended) The ~~transmitter in the~~ OFDM communication device according to claim 1, wherein said ideal low-pass filter comprises an FFT section for subjecting an input signal to a fast Fourier transform (FFT) and a zero substitution section for providing zero substitution for FFT section output components having a frequency higher than specified.

3. (currently amended) The ~~transmitter in the~~ OFDM communication device according to claim 2, wherein said ideal low-pass filter comprises a table that stores values obtained when input signals pass through said ideal low-pass filter in accordance with ~~the~~ values of the input signals.

4. (currently amended) The ~~transmitter in the~~ OFDM communication device according to claim 1, wherein said ideal low-pass filter comprises a table that stores values obtained when input signals pass through said ideal low-pass filter in accordance with ~~the~~ values of the input signals.

5 - 6. (cancelled)

7. (currently amended): An orthogonal frequency division multiplexing (OFDM) communication device for synchronizing a transmitter and a receiver with a synchronization preamble, comprising:

a transmitter for obtaining a zero amplitude reduced preamble signal by passing a first specified synchronization preamble through an ideal low-pass filter to reduce a signal component to near zero amplitude within a time domain, and generating an OFDM transmit signal by time-multiplexing the obtained zero amplitude reduced preamble signal with transmit data; and

a receiver having a synchronization timing ~~detector~~ calculator for determining ~~at~~ the cross correlation between a received signal and a second specified synchronization preamble, which is patterned the same as the first specified synchronization preamble counterpart in the transmitter section, and ~~detecting~~ calculating a synchronization position, which is shifted from a peak value position by a specified amount of time, in accordance with the determined cross correlation.

8. (original): The OFDM communication device according to claim 7, wherein said ideal low-pass filter comprises an FFT section for subjecting an input signal to fast fourier transform (FFT) and a zero substitution section for providing zero substitution for FFT section output components having a frequency higher than specified.

9. (currently amended) The OFDM communication device according to claim 7 ~~or 8~~, wherein said ideal low-pass filter comprises a table that stores values obtained when input signals pass through said ideal low-pass filter in accordance with the values of the input signals.

10. (original) The OFDM communication device according to claim 7, wherein the synchronization position is shifted from a peak position of said cross correlation within said receiver by a specified amount of time.